



# GasClam<sup>®</sup>

**The world's first  
continuous  
ground gas  
monitor.**



**GasClam continuously measures gases and logs real time data, building a clear picture of what is going on below the ground.**

#### **Unique ground gas monitoring solution**

- Monitors continuously and unmanned for 1 month
- Measures methane (CH<sub>4</sub>), carbon dioxide (CO<sub>2</sub>) and oxygen (O<sub>2</sub>)
- Measures temperature, borehole and atmospheric pressure
- Telemetry system available for real-time monitoring
- Optional CO & H<sub>2</sub>S and VOC plus water depth sensors
- Programmable borehole venting

#### **Collects accurate data and real trend information**

- Simultaneously records gas and environmental data
- Provides complete data for full site assessment
- Events captured with time and date stamp
- Removes any uncertainty in the gas monitoring regime
- Reduces cost of site investigation and remediation

#### **Demonstrates full due diligence**

- Meets all legislative needs
- Assists with design of gas protection measures
- Validates operation for Biogas production

#### **Ease of use**

- Easy installation in a secure 50 mm or 2" borehole
- Runs on a rechargeable pack or two standard D-cell batteries
- Data can be downloaded on-site for quick analysis
- Reduces unnecessary, costly site visits

#### **Safety**

- A post site development monitor for extra safety
- Telemetered alarms

Using portable gas detection instruments to spot check boreholes from time to time is fraught with potential issues. Considerable published material exists that question whether the traditional method of collecting gas-data from boreholes is at all adequate.

The use of the numerous guidance notes from the legislators and enforcers would seem to indicate they too think the current methods are flawed. To evaluate soil gas effectively, detailed and frequent measurements are required, particularly when events occur e.g. such as when the barometric pressure falls. Data collected in periodic spot check basis does not give a complete picture, so decisions are made reliant on historic trigger values rather than real trend information on the borehole being monitored.

### Current issues

1. Spot check data only available
2. True ground gas regime is not observed
3. High levels of uncertainty
4. Conservative risk assessment
5. Expensive remediation required

All these led Salamander to develop the unique and patent pending GasClam which is designed as the definitive solution.

### Applications include

- Hydrofracking • Vapour Intrusion • Refineries • Landfill site
- Brownfield sites • Disused coal mines • Filling stations
- Petroleum/Solvent storage • Below ground carbon capture and storage

### Accessories

GasClam is supplied with an exclusive range of accessories.  
Visit [www.ionscience.com/gasclam](http://www.ionscience.com/gasclam) for more info.

Environmental	Method / Type	Range	Resolution
Barometric Pressure	Piezoelectric	800 to 1200 mBar	1 mBar
Borehole Pressure	Piezoelectric	800 to 1200 mBar	1 mBar
Temperature	Internal Chip	-5 °C to +50 °C (41 °F to 122 °F)	1 °C or 1 °F
Water Depth*	Piezoelectric	0 – 25 m	0.01 m

Sensor	Method / Type	Range	Resolution	Accuracy	Linearity
CH <sub>4</sub> **	Infra-red	0-100% or	1% of FSD above 50%, 0.5% below 50%	+/- 2% FSD	+/- 2% FSD or 10% reading
CO <sub>2</sub> **		0-5%			
Oxygen	Electrochemical	0 - 25%	0.1% vol	+/- 5% of reading +/- 1 digit	>1 % O <sub>2</sub> deviations @ 10% O <sub>2</sub>
CO*^	Electrochemical	0-500 PPM	1 PPM	+/- 3 ppm at 0, +/- 3% at 250 ppm	+/-5 %
H <sub>2</sub> S*^	Electrochemical	0-200 PPM	1 PPM	+/- 1 ppm at 0, +/- 2% at 50 ppm	+/-5 %
VOC*	PID	0-4000 PPM	1 PPM	+/- 5% of reading +/- 1 digit	+/- 5% to 100 ppm

\*Optional; \*\* Choice of 2 IR sensors, specify on order; ^Other sensors available on request

## GASCLAM TECHNICAL SPECIFICATION

### MEMORY

65000 time/date stamped readings

### POWER

Internal rechargeable battery pack or x 2 Alkaline D-cells or

### BATTERY LIFE

1 month (based on hourly sampling with rechargeable battery pack)

### CASE

High Quality Stainless steel

### WEIGHT

7kg or 13.2lb

### DIMENSIONS

Overall Length 85cm or 33½ inches  
Borehole Tube Length 78cm or 30¾ inches  
Head Diameter 10.9cm or 4¼ inches  
Borehole Tube Diameter 4.3cm or 1¾ inches

### PROTECTION

IP-68 (continuous submersion)

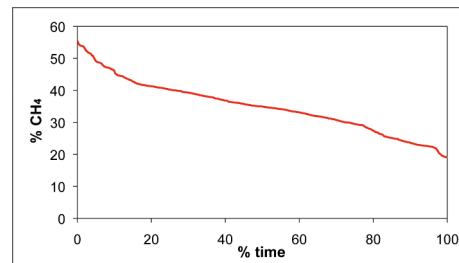
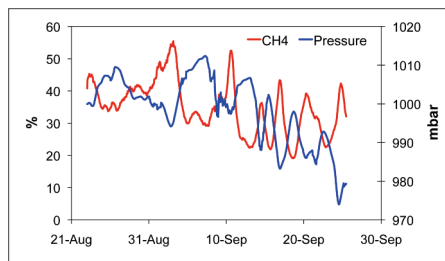
### OPERATION TEMPERATURE

-20 °C to +50 °C or -4 °F to 122 °F

### APPROVALS

CE , EMC, ATEX 0105 X, Ex II 2G, Ex d ib [ib] IIB T4,  
IECEx Ex d ib [ib] IIB T4 Gb,  
Us and Canadian approvals Class 1, Zone 1, (A)Ex d ib IIB T4

European patent granted / World-wide patent granted. Exclusively sold and promoted by Ion Science Ltd. GasClam is a registered trademark of Salamander Group.



GasClam V1.5. This publication is not intended to form the basis of a contract and specifications can change without notice.



Thank you for reading this data sheet.

For pricing or for further information, please contact us at our UK Office, using the details below.



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Please note - Product designs and specifications are subject to change without notice. The user is responsible for determining the suitability of this product.